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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/866,511	05/24/2001	Niles Pierce	A-70365-1/RFT/RMS/RMK	4763

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EXAMINER

MARSCHER, ARDIN H

ART UNIT	PAPER NUMBER
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1631

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/866,511		PIERCE ET AL.	
	Examiner		Art Unit	
	Ardin Marschel		1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2004 and 30 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 28-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Applicants' arguments, filed 5/21/04 and 8/30/04, have been fully considered but they are not deemed to be persuasive. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

NEW MATTER

Claims 28-47 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

NEW MATTER has been amended into the claims via the different HERO searching step practice in part c) of independent instant claims 28, 35, 42, and 45 compared to the disclosure as originally filed. The HERO steps are clearly set forth in the specification on page 13, line 26, through page 14, line 13, and generally depicted in the Figures. The page 13, line 26, through page 14, line 13, discloses several limitations which are disclosed as filed in the HERO steps which are not present in the above listed instant claims. For example, the first step of Goldstein singles DEE is listed on page 13, line 29, with a "(T = 1)" limitation which is not present in the claims in the corresponding step c), substep i). Step 2) on page 13, lines 29-30, contains the limitation "simple" which is not present in the corresponding step in the claims. Step 3)

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on page 13, lines 30-31, is wholly absent in the HERO steps in the claims. It is noted that line 28 on page 13 of the specification requires that the HERO steps include the thereafter cited steps via the phrase "HERO includes the following steps". There is no written basis for some type of picking and choosing of steps thereafter cited as an optional HERO method as originally filed. Additionally, on page 13, lines 31-33, the application of singles bound criteria includes a requirement that bound energy is greater than E_{low} as found as the lowest known energy of a valid conformation obtained from the Monte Carlo searches. The corresponding HERO step iii) in the above listed independent claims lack any corresponding bound energy limitation. Step 5) on page 13, line 33, of the specification requires an "alternating sequentially" practice between steps thereafter disclosed as a) through e). This "alternating sequentially" limitation is not present in the instant claims. Also, step a) therein cites a "to flag" practice which is not in the corresponding step in the presently pending claims. Steps b) and c), bridging pages 13 and 14 of the specification cite energies not present in the corresponding steps in the presently pending claims. The step d) Goldstein doubles on page 14, lines 2-3 is of the DEE type which is not in the corresponding claim step, nor is the "to flag" limitation in the claims. Additionally, these steps are repeated until the GMEC is found as disclosed on page 14, line 4, whereas, in contrast, step c) of instant claim 28, for example, only requires that "optimized" protein sequences are generated. GMEC is vastly more specific and limited than "optimized" protein sequences. Also, on page 14, lines 7-13, several additional steps are required as filed in the method of generating protein sequences ready for experimental testing directed to random position changing

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of rotamers, performing a predetermined number of jumps, and generating a rank-ordered list of sequences. Consideration of the remainder of the instant disclosure as originally filed has failed to reveal written support for the generic HERO algorithm as now claimed in the independent claims or the generic protein sequence generation practice as now claimed. Thus, the citation of steps now in the claims which are vastly broader via lacking a long list of specific details in the protein sequence generation steps compared to the methodology as originally filed has resulted in numerous NEW MATTER limitations in the claims. This rejection is necessitated by amendment.

VAGUENESS AND INDEFINITENESS

Claims 28-47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The independent claims 28, 35, 42, and 45 all cite the abbreviation "HERO" without its full name therewith. Such abbreviations cause the claims to be vague and indefinite unless accompanied by their full name. It is noted that the previous claim set did, in fact, include the full name of "HERO" in contrast to the presently pending claim set. Clarification via clearer claim wording is requested. Claims which depend directly or indirectly from the above listed independent claims also contain this unclarity due to their dependence. This rejection is necessitated by amendment.

NON-STATUTORY SUBJECT MATTER

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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Claims 28-42 and 44-47 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

This rejection is reiterated and maintained from the previous office action, mailed 1/23/04, and applied to newly added claims as necessitated by amendment. It is noted that claim 43 is not included as rejected hereinunder due to requiring a displaying on a display device which is deemed a physical act outside of computation on a computer. Applicants argue that *In re Alappat*, directed to a rasterizer that such a machine is statutory. In response a rasterizer clearly controls a physical phenomenon which is the control of visual energy display in such a rasterizer. There is no such physical energy control in the instant claim practice, except for claim 43 as noted above. Thus, the fact pattern in *In re Alappat* is different from those of instant claims 28-42 and 44-47 and thus non-persuasive. Applicants then argue that the instant claims convert discrete waveform data samples into anti-aliased pixel illumination intensity data to be displayed on a display means. In response, the instant claims lack any waveform limitations or pixel illumination intensity data. Thus, the instantly claimed invention fails to correspond to the argued invention and thus is a non-persuasive argument. Applicants further argue that the apparatus limitations in claims 35 and 42 are useful, concrete, and tangible. In response, applicants are directed to the MPEP, part IV, subpart B, subpart 1, wherein the citation of computer media etc. for containing or recording otherwise non-statutory material does not make it statutory. Applicants lastly argue that *In re Beauregard* holds that computer programs embodied in a tangible medium are patentable under 35 U.S.C. § 101. In response, the legal decision of *In re Beauregard*

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vacates a printed matter doctrine holding which is not the basis for this rejection. Thus, the fact pattern is not the same as regarding this rejection and thus moot.

No claim is allowed.

Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the Central PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CFR § 1.6(d)). The Central PTO Fax Center number is (703) 872-9306.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ardin Marschel, Ph.D., whose telephone number is (571) 272-0718. The examiner can normally be reached on Monday-Friday from 8 A.M. to 4 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, Ph.D., can be reached on (571) 272-0722.

Any inquiry of a general nature or relating to the status of this application should be directed to Legal Instrument Examiner, Tina Plunkett, whose telephone number is (571) 272-0549.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

November 12, 2004

Ardin H. Marschel 11/12/04
ARDIN H. MARSCHEL
PATENT EXAMINER